

REMARKS

Claims 1-14 are pending in this application. Claims 6-13 are withdrawn from consideration by the Examiner. The Office Action rejects claims 1-5 and 14 under 35 U.S.C. §112 and §103(a). Applicants respectfully traverse the rejections.

I. Rejection under 35 U.S.C. §112, Second Paragraph

The Office Action rejects claims 1-5 and 14 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Office Action asserts that claim 1 contains a chemical formula with oxygen, but Table 3 of the specification lists the final product without an oxygen in the formula.

MPEP §2173.04 provides:

If the scope of the subject matter embraced by the claims is clear, and if applicants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 U.S.C. 112, second paragraph.

Applicants respectfully submit that the scope of the subject matter embraced by the claims is clear regarding the presence of oxides and that one of ordinary skill in the art would recognize the final products listed in the specification, such as those listed in Table 3, are oxides. See specification, page 18 lines 3-13, reproduced below for convenience (emphasis added).

Added components shown in Table 3 were added to the initial product, re-firing was performed in an oxygen atmosphere, and the fired materials were crushed to provide positive electrode material powders. Average particle diameters were measured by laser diffraction method and the numbers of moles of the individual elements were measured by chemical analysis, which are shown in Table 3.

In Nos. 8 to 11, an amorphous phase of an oxide is formed at the surface of each of particles. In Nos. 12 and 13, an amorphous phase of an oxide is formed within each of particles and at the surface thereof.

Applicants also respectfully submit that it is known, common, and clear in the art to refer to the nominal composition without designating the relationship of "O" to the other atoms. Therefore, any person having ordinary skill in the art should immediately recognize and understand the compounds in the specification, such as those listed in Table 3, are oxides. Accordingly, claims 1-5 and 14 satisfy the requirements of 35 U.S.C. §112, second paragraph and, thus, reconsideration and withdrawal of the rejection are respectfully requested.

II. Rejections under 35 U.S.C. §103(a)

A. Lampe-Onnerud

Claims 1-5 and 14 are rejected under 35 U.S.C. §103(a) as having been obvious over U.S. Patent Application Publication No. 2002/0192552 to Lampe-Onnerud et al. (Lampe-Onnerud). Applicants respectfully traverse the rejection.

On page 2 of the Office Action mailed August 6, 2008, the PTO acknowledges that Lampe-Onnerud fails to disclose a formula of a compound within the scope of claim 1. Furthermore, the substitution suggested by the Office Action results in a compound having a chemical formula of $\text{Li}_1\text{Ni}_{0.87}\text{Co}_{0.08}\text{Mg}_{0.01}\text{Mn}_{0.05}\text{O}_2$. In this formula $a = 1$, $b = 0.87$, $c = 0.08$, $d = 0.01$ and $e = 0.05$. Thus, $d/(b+c) = 0.0105$, which falls outside the claimed range of independent claim 1. Additionally, $b+c = 0.95$, which does not satisfy the limitation of claim 1 that $b+c = 1$. Therefore, Lampe-Onnerud fails to teach or to have rendered obvious, or establish any reason or rationale to provide the combination of features as recited in claim 1. Accordingly, even after the substitution proposed by the Office Action and in contrast to the assertions on page 4 of the Office Action, the combination of the claimed ranges do not overlap or lie inside the ranges disclosed by the prior art and, thus, no *prima facie* case of obviousness exists with respect to claim 1.

The Office Action also asserts that given the limited number of possible species for the substitution (Mg for Ba, and Mn for Al) of Example 6 of Lampe-Onnerud, one of ordinary

skill in the art is able to "at once envisage" the elements of the compound claimed based on a limited class of compounds that can be interchanged for compounds A and B. See Office Action, page 2. The Office Action then states: "the Examiner notes that should Lampe-Onnerud have solely disclosed the formula in the Abstract, the combination may have been 1906[sic], but given the disclosure of Example 6, it is noted that the combination of possibilities is 28..." See Office Action, page 6. Applicants respectfully disagree.

The Office Action fails to resolve the *Graham* inquiries and the Office Action's analysis is flawed because it fails to clearly articulate the appropriate findings of fact within the *Graham* framework, such as those set forth in MPEP §2144.08(II)(A)(4).

It is well-settled that "[t]he fact that a claimed species or subgenus is encompassed by a prior art genus is not sufficient by itself to establish a *prima facie* case of obviousness. *In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994) ("The fact that a claimed compound may be encompassed by a disclosed generic formula does not by itself render that compound obvious."). In fact, the MPEP provides very specific guidelines ("Genus-Species Guidelines") to "assist Office personnel in the examination of applications which contain claims to species or a subgenus of chemical compositions for compliance with 35 U.S.C. 103 based upon a single prior art reference which discloses a genus encompassing the claimed species or subgenus but does not expressly disclose the particular claimed species or subgenus." See MPEP §2144.08. These guidelines indicate that a proper obviousness analysis involves resolving the *Graham* inquiries.

MPEP §2144.08(II)(A)(4) indicates that in light of the findings made relating to the three *Graham* factors, Office personnel should determine whether it would have been obvious to one of ordinary skill in the relevant art to make the claimed invention as a whole, i.e., to select the claimed species or subgenus from the "disclosed prior art genus." Example 6 of Lampe-Onnerud, which was selected by the Office Action, is not the disclosed prior art genus

and, thus, the Office Actions analysis with respect to the size of the genus is flawed and improper. The rejection is thus improper because the Office Action fails to resolve the *Graham* inquiries and follow specific Genus-Species Guidelines set forth in MPEP §2144.08 for compliance with 35 U.S.C. 103 based upon a single prior art reference, which discloses a genus encompassing the claimed species or subgenus but does not expressly disclose the particular claimed species or subgenus. Here, the composition and ranges described in Lampe-Onnerud are too broad to support a prima facie case of obviousness, as repeatedly argued throughout prosecution and set forth below.

Lampe-Onnerud merely teaches a *very wide genus* of compounds that is so broad as to be incapable of suggesting any particular but otherwise undisclosed species of compound therein to a person having ordinary skill in the art. Lampe-Onnerud at least fails to teach or suggest the presently recited composition $\text{Li}_a\text{Ni}_b\text{Co}_c\text{Ba}_d\text{Al}_e\text{O}_x$ having the precise values for the variables "a" through "x" as are recited in claim 1.

The total number of species encompassed by Lampe-Onnerud's teaching is 1,905, as set forth below. The Abstract of Lampe-Onnerud indicates (emphasis added):

"A" is at least one element selected from the group consisting of barium, magnesium, calcium and strontium. "B" is at least one element selected from the group consisting of boron, aluminum, gallium, manganese, titanium, vanadium and zirconium.

Looking first at "A," the number of possible combinations for A is 15. Specifically, there are four combinations of one element, six combinations of two elements, four combinations of three elements and one combination of all four elements ($4+6+4+1 = 15$). Turning now to B, the number of possible combinations is 127. Specifically, there are seven combinations of one element, 21 combinations of two elements, 35 combinations of three elements, 35 combinations of four elements, 21 combinations of five elements, seven combinations of six

elements, and one combination of six elements ($7+21+35+35+21+7+1 = 127$). Therefore, the total number of combinations between A and B is $15 * 127 = 1,905$.

Accordingly, Lampe-Onnerud does not teach a genus with only 28 species (as asserted by the Office Action at page 6, but instead teaches a genus with nearly 2,000 possible combinations of elements. From these nearly 2,000 species taught by Lampe-Onnerud, the Office Action uses the present claims and disclosure to select *one* very particular species, and alleges that a person of ordinary skill in the art would have envisaged this particular species. Clearly, the Office Action has engaged in impermissible hindsight reconstruction using Applicants' claims and disclosure as a template, which is improper. Thus, for at least the reasons set forth above, the rejection is improper.

The Office Action also asserts that Applicants did not rebut the Office Action's position that "d" of 0.01 is close enough to the claimed range of 0.0005 - 0.007. Applicants respectfully disagree because arguments rebutting this assertion were already made of record.

On page 7 of the Amendment mailed May 5, 2008, Applicants previously argued that:

Lampe-Onnerud does not teach or suggest a composite oxide powder having a total composition represented by the formula of independent claim 1. The Office Action asserts that at the time of invention it would have been obvious to substitute barium and aluminum, respectively, for the magnesium and manganese of Lampe-Onnerud's example 6. The Office Action further asserts that this is because Lampe-Onnerud discloses a limited class of compounds that can be interchanged for compounds A and B. However, making the substitution asserted by the Office Action does not result in a composite oxide powder having a total composition represented by the formula of independent claim 1. The substitution suggested by the Office Action results in a compound having a chemical formula of $\text{Li}_1\text{Ni}_{0.87}\text{Co}_{0.08}\text{Mg}_{0.01}\text{Mn}_{0.05}\text{O}_2$. In this formula $a = 1$, $b = 0.87$, $c = 0.08$, $d = 0.01$ and $e = 0.05$. Thus, $d/(b+c) = 0.0105$ which falls outside the claimed range of independent claim 1. Additionally, $b+c = 0.95$, which does not satisfy the limitation of claim 1 that $b+c = 1$. Thus, Lampe-Onnerud fails to teach or suggest a composite oxide powder, as claimed. Accordingly, Lampe-Onnerud would not have rendered obvious independent claim 1.

Thereafter, Applicants agreed with the Office Action's statement that "the claimed ranges and the prior art ranges do not overlap" (see Office Action mailed August 6, 2008, page 3).

Applicants respectfully submitted a showing of criticality, which demonstrates the presently claimed compounds do *not* have the same properties as other species in the broad genus disclosed by Lampe-Onnerud. Such a showing rebuts the Office Action's allegation that "one skilled in the art would have expected them to have the same properties."

In this regard, Applicants again respectfully submit that the presently claimed invention displays *unexpected results* of improved safety performance and discharge capacity with respect to the incorporation of barium within the claimed range. Specifically, for example, Comparative Example 3 of Table 2 of the present specification shows a composition encompassed by Lampe-Onnerud's ranges but is outside Applicants' claimed range. Even though only the content of barium of this composition is outside the claimed range, appropriate thermal stability cannot be obtained and the discharge capacity is also degraded (emphasis added). Furthermore, Comparative Example 5 of Table 2 does not contain any barium (i.e. "d" = 0). In the absence of barium, the cycle performance, the safety performance and the discharge capacity all proved inferior to the claimed invention (emphasis added).

Lampe-Onnerud nowhere teaches these specific unexpected results with respect to incorporation of barium within the claimed range, and nowhere teaches or suggests that the elements and content amounts could or should be specifically selected to provide these beneficial results. Therefore, these unexpected results show that the presently claimed values for the variables "a" through "x" encompass a critical range of barium, that would not have been predictable or expected over the much broader range of compounds taught by Lampe-Onnerud.

Accordingly, for at least the reasons set forth above, Lampe-Onnerud fails to teach or to have rendered obvious, or establish any reason or rationale to provide the combination of features as recited in independent claim 1. Claims 2-5 and 14 depend from claim 1 and, thus, also would not have been rendered obvious by Lampe-Onnerud.

Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Takahashi in view of Kweon

Claims 1-5 and 14 are rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,679,481 to Takahashi et al. ("Takahashi") in view of U.S. Patent Application Publication No. 2002/0192148 to Kweon et al. ("Kweon"). Applicants respectfully traverse the rejection.

The Office Action acknowledges that Takahashi fails to disclose a compound containing aluminum. See Office Action, page 5. Without conceding the propriety of the combination of Takahashi and Kweon, Applicants respectfully submit that the combination of applied references at least fails to teach or to have rendered obvious, or establish any reason or rationale to provide a composite oxide powder having a total composition of formula 1 where $a/(b+c) = 1.0$ to 1.2 , $d/(b+c) = 0.0005$ to 0.007 , as required by claim 1.

Example 4 of Takahashi is a compound having a chemical formula of $\text{Li}_{0.98}\text{Ba}_{0.02}\text{Ni}_{0.90}\text{Co}_{0.10}\text{O}_2$. In this formula $a = 0.98$, $b = 0.90$, $c = 0.10$, $d = 0.02$ and $e = \text{doped Al}$ (asserted by the Office Action to be a result effective variable from the teachings of Kweon). Thus, $a/(b+c) = 0.98/(0.90 + 0.10) = 0.98$ (less than 1.0 to 1.2) and $d/(b+c) = 0.02/(0.90 + 0.10) = 0.02$ (greater than 0.0005 to 0.007), which both fall outside the combination of claimed ranges recited in independent claim 1. Kweon fails to cure these deficiencies.

First, Kweon fails to even mention barium, much less the range of barium required by the combination of ranges recited in claim 1. Furthermore, when the content of barium is as

large as that disclosed by example 4 of Takahashi, the present specification indicates that the thermal stability is poor. See specification page 10, second paragraph; see also specification, comparative example 3. Thus, Takahashi and Kweon, considered either separately or combined, at least fail to disclose $a/(b+c) = 1.0$ to 1.2 , and $d/(b+c) = 0.0005$ to 0.007 as required by claim 1 and, thus, would not have rendered obvious claim 1. Accordingly, for at least the reasons set forth above, Takahashi and Kweon fail to teach or to have rendered obvious, or establish any reason or rationale to provide each and every feature, as required by claim 1. Claim 1 would not have been rendered obvious by Takahashi and Kweon. Claims 2-5 and 14 depend from claim 1 and, thus, also would not have been rendered obvious by Takahashi and Kweon. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



James A. Oliff
Registration No. 27,075

Benjamin S. Prebyl
Registration No. 60,256

JAO:BSP

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OLIFF & BERRIDGE, PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

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